into an eye **76** through a small 2–4 millimeter incision **78** in a cornea **80** of the eye **76** formed by the phacoemulsification process which previously removed the native lens of the eye. Next, the insertion tube **46** is preferably inserted through a small incision **81** in the lens capsule **82**. The insertion tube **46** is positioned such that the compressed lens **65** exits the insertion tube **46** in the desired position. The injection rod **54** is continually advanced as the second end **62** of the injection rod **54** is turned within the threads of the second end **58** of the injection sleeve **52** which advances the intraocular lens **65** until it is forced out of the injection tube **46** and into the lens capsule **82**. As the lens **65** is expelled from the injection tube **46**, the lens **8** will expand from its compressed state into its original unstressed state and the user will position the injection handle **50** in such a manner that the lens **65** is expelled into the desired location and orientation within the lens capsule **82**.

FIGS. **12–13** illustrate an alternative embodiment of the intraocular lens injector in which the compression portion **12** and insertion portion **14** are formed from a single piece **90** of composite material which can be disposed of after each use. Preferably, a viewing hole **92** is formed in a top surface **94** of the one-piece compression and insertion portion **90** to enable the user to view the intraocular lens **65** within the receiving channel **18** to verify that it has been properly aligned within the channel **18**. In one embodiment, a small raised button detent **93** is molded onto the shuttle member **16** which will index and audibly snap into place within the viewing hole **92** when the shuttle has been completely inserted within the intraocular lens receiving channel and the scoop end **24** of the shuttle is in proper alignment with the opening to the cylindrical passageway **20**. Further, the raised button **93** will act to resist the compression forces on the lens **65** and will hold the shuttle member **16** in alignment with the cylindrical passageway **20** to prevent any damage from occurring to the lens during injection. As illustrated in FIG. **13**, the single piece compression and injection portion **90** is mated to a tubular injection handle **50** using threads **96** and a set of mating threads **98**. The mating threads **96** and **98** may be of a standard screw type thread, a luer-lock thread or any other connection means known to one of skill in the art. The first end **56** of the injection sleeve **52** is mated with an injection rod **54**. Preferably, the second end **58** of the injection sleeve **52** is threaded to enable the injection rod **54** to be slowly advanced into the one-piece compression and injection unit **90**. Preferably, the advancement of the injection rod **54** is controlled by turning the injection rod **54** within the threaded second end **58** of the injection handle **50**. Preferably, the injection handle **50** and insertion rod **54** are formed of a stainless steel, titanium, or aluminum material which can be easily machined into the desired configuration. In addition, the one-piece compression and insertion portion **90** is made from a composite or plastic material which is inexpensive, as the embodiment of the one-piece compression and injection portion **90** is preferably disposable.

In use, the injection rod **54** is placed within the tubular steel handle **50** such that the rod **54** is positioned just above the opening of the IOL receiving channel **18** and the threads of the insertion rod **54** begin to engage the threads of the second end **58** of the injection sleeve **52**. The intraocular lens **65** is then placed within the receiving channel **18** and the alignment of the intraocular lens **65** is checked through the viewing hole **92**. As described above, the shuttle member **16** is advanced toward the cylindrical passageway **20** which advances the lens **65** into the cylindrical passageway **20** and the lens **65** begins rolling upon itself. Once the lens **65** is completely advanced into the cylindrical passageway **20**, the raised button **93** on the shuttle member **16** snaps into place within the viewing hole **92**, to maintain the alignment of the shuttle member **16** with the cylindrical passageway **20** and to prevent the compression force of the lens from forcing the shuttle **16** out of alignment. At this point, the lens **65** is formed into the elongated tight spiral configuration which conforms to the diameter of the cylindrical passageway **20**. The injection rod **54** is advanced by turning the rod **54** in the threads on the second end **58** of the injection sleeve **52** to slowly advance the insertion rod **54** and the compressed intraocular lens **65**. The intraocular lens **65** is slowly advanced through the cylindrical passageway **20** and out the opening **100** at the end of the once piece compression and injection portion **90**.

In one embodiment, the one-piece unit **90** is made from a disposable plastic material which can be thrown away after each use. This disposable one-piece compression and injector unit **90** is advantageous, as it does not require the continual sterilization of the injection piece **90** for each patient. Further, the user does not have to be concerned with the problems associated with wear and tear on the injector which may result in rough edges or barbs forming within the lens injector which may damage the intraocular lens **65** upon compression or insertion of the lens.

The lens can be stored within the lens receiving channel **18** in the one-piece compression injection portion **90** during shipping, so that the only assembly required is attaching the one-piece compression and injection portion **90** to the injection handle **50**. Preferably, the shuttle member **16** is held in a storage position by a detent or strap (not shown) which extends from the shuttle member **16**. The storage position is such that the lens **65** remains within the lens receiving channel **18** without being compressed by the shuttle member **16**. Preferably, the one-piece compression and injection portion **90** is sterilized and sealed in the storage position before the one-piece unit **90** is shipped.

Once the lens **65** is to be inserted, the seal is broken and the one-piece unit **90** is attached to the injection handle **50**. The storage detent on the shuttle member **16** is broken by applying a force to the shuttle member **16** which sheers the storage detent and enables advancement of the shuttle member **16**. The shuttle member **16** is advanced and the lens **65** is compressed into the cylindrical shape of the cylindrical passageway **20**. The alignment and progression of the lens **65** within the intraocular lens receiving channel **18** can be verified through the viewing hole **92** until the lens **65** is completely inserted into the cylindrical passageway **20**. This one-piece embodiment **90** is advantageous over prior art lens injectors as the one-piece compression and insertion portion **90** can be used as both a shipping container and as a means for compressing and inserting the lens **65** into the eye.

The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is:

1. A method of inserting an intraocular lens into a small incision comprising the steps of:

providing an intraocular lens in an unstressed state;

rolling said lens upon itself into a tightly rolled spiral within a passageway, said passageway having an opening; said rolling step comprising:

urging said unstressed intraocular lens into said passageway through said opening;

contacting a far wall of said passageway opposite said opening with a first edge of the intraocular lens;